Message

From: Peter Thomas [pthomas@manuregy.com]
Sent: 10/11/2016 4:50:08 PM
To: McGoldrick, Catherine [McGoldrick.Catherine@epa.gov]; Pratt, Stacie [Pratt.Stacie@epa.gov]
Subject: Regional-scale poultry litter gasification
Attachments: Gasifier - Thermal oxidizer with labels.pdf; Gasifier Cut-away.pdf; Interior of the gasifier.pdf; Coaltec Gasification - Thermal oxidizer.easm; EcoChar.jpg; Practice 735 - Maryland.pdf; Practice 629 - Maryland.pdf; MaxWest letter from the EPA.pdf

Cassie and Stacie,

We are very interested in installing a regional-scale (multi-farm), highly automated, fixed-bed, refractory-lined, oxygen-starved gasifier / thermal oxidizer system in order to process poultry litter on the eastern shore of the Chesapeake Bay. Our gasification / thermal oxidizer system complies with USDA - NRCS Conservation Practice 735, as well as USDA - NRCS Conservation Practice 629 (see attached). On Monday afternoon, September 12, 2016, this type of manure gasification system was formally approved as a new agricultural Best Management Practice for the EPA Region 3 Chesapeake Bay Program. The EPA Bay Program calls a high-temperature gasification system MTT-6, and it recognizes and provides credit for the capture and removal of 100% of the phosphorus, which remains in the activated carbon (sometimes called biochar). The Bay Program also recognizes and provides credit for the removal of 85% of the nitrogen in the manure or poultry litter using MTT-6. The thermal oxidizer converts the ammonia and other nitrogen compounds in the manure or poultry litter to N^2 (the air we breathe). The nitrogen removal from the poultry litter that is processed through the gasification system is actually 100%, because any nitrogen that is not driven off as N^2 by the thermal oxidizer remains in the activated carbon, most of which will probably be transported out of the Chesapeake Bay watershed. Unlike the numerous uncertain land-based BMPs such as cover crops, stream fencing and riparian buffers, gasification / thermal oxidation is point source nutrient removal technology, the efficiency of which can be lab-verified.

It is important to understand that our gasification / thermal oxidizer system is not a solids waste incinerator. As you can see in the CAD drawings and from our description above, the gasification system is a single, oxygen-starved unit, and the gasifier cannot operate without the thermal oxidizer. There is a very important distinction between oxygen-starved gasification / thermal oxidizer systems and solid waste incinerators. When Coaltec Energy operates its oxygen-starved gasification / thermal oxidizer system, no flame is applied or propagated within the gasifier, and the gasifier prevents combustion by limiting the air-to-manure (or litter) ratio such that combustion cannot occur. The gasifier is not a solid waste incinerator, because it does not combust a solid agricultural waste. Since syngas is a gas, and not a solid, semisolid, or liquid, it does not meet the definition of a solid waste, even though the manure or litter is derived from agricultural operations. Therefore, the combustion of the syngas in Coaltec Energy's thermal oxidizer process heater is not subject to solids incinerator rules. This very important distinction between solids incineration and oxygen-starved gasification / thermal oxidization was made on page 3 of the attached December 19, 2013 EPA Letter Ruling to a company in Florida that was gasifying municipal biosolids (sludge).

Attached are several drawings of Coaltec's gasifier / thermal oxidizer system. The 5-megabyte green and yellow icon requires eDrawings (SolidWorks) CAD software in order to open, view and rotate the system. One photo is the powdered activated carbon, which has been produced every week from raw dairy manure solids at The Ohio Heifer Center since December 2012, so our gasification system is not a new technology.

Two and one half tons of poultry litter is augered into the gasifier per hour, 24 hours per day, 7 days per week. It is slowly augered through the gasifier over a two-hour period. The **only** two end-products of the gasification system are: 1) Approximately 900 pounds of powdered activated carbon per hour (i.e. 70 tons per week or 3,500 tons per year), and 2) 14 to 20 million Btu per hour of waste heat for use in generating electricity or steam, but preferably, producing pathogen-free bedding for chickens or cows. Each gasifier can process 20,000 tons of poultry litter per year, and two, three or four gasifiers can easily be installed side-by-side to process 40,00, 60,000 or 80,000 tons of litter at a regional facility, for example, on the eastern shore of the Chesapeake Bay.

It is our understanding that the EPA has determined that poultry litter is a Non-hazardous Secondary Material, and that when operated in compliance with the Clean Air Act and state air emissions regulations, you have approved the use of poultry litter for manure-to-energy systems at the farm-scale. What is required for Coaltec Energy to install and operate NRCS Conservation Practice Code 735 on a regional scale to process 20,000, 40,000, 60,000 or 80,000 tons of poultry litter per year from several dozen farms on the eastern shore of the Chesapeake Bay?

Regards,

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